United States
Office of Personnel Management

FWS Job Grading Standard
for
Die Sinker

3428

Workforce Compensation & Performance Service
Office of Classification Programs
December 1997, HRCD-4

WORK COVERED

This standard is used to grade nonsupervisory jobs involved in machining and grinding matched impressions in steel blocks to repair and make metal dies which are used in forging shops.

TITLES

Jobs covered by this standard are to be titled *Die Sinker*.

GRADE LEVELS

This standard describes only one grade level. If any job differs substantially from the skill, knowledge, and other work requirements described in this standard it may warrant grading either above or below this grade level.

HELPER AND INTERMEDIATE JOBS

Helper die sinker jobs are graded by the Job Grading Standard for Trades Helper Jobs.

Progression to grade WG-14 is normally through successful completion of apprenticeship in the trade or from lower journeyman metalworking jobs rather than directly from an intermediate level.

3428-14 Die Sinker, Grade-14 3428-14

General: The WG-14 Die Sinker plans, lays out, and performs machine operations and benchwork to construct, alter, and repair forging die block impressions.

He receives die projects indicating the size, shape, and dimensions of the item or items which will be manufactured in the forge. He organizes his work methods and proceeds on projects according to his own plan, assuming responsibility for the quality of workmanship, accuracy of contours and dimensions and the mechanical operation of the die project. Instructions are provided by the shop foreman or forge workers on unusual work such as design changes or forging limitations.

Skill and Knowledge: In this occupation, the worker is required to know forge shop procedures, machine shop techniques, shop mathematics, and precision measuring procedures to plan and lay out die block impressions. He must know how to organize and determine work procedures and to select materials according to specifications and characteristics of the item to be forged. He solves difficult setup problems which require nonstandard jigs, fixtures, and other holding devices. He must know how to determine the parting line so that the forged piece can be easily removed from the dies. Knowledge of the strength of various metals and their heating and shaping characteristics is also used to plan and lay out a project so that the machining and forging can be done in a minimum number of steps with the most economical use of stock.

He must know how to finish impressions by hand grinding to remove tool marks and obtain accurate final shape. He tests his dies by aligning and fastening together, making lead, babbit, or wax proofs.

The WG-14 Die Sinker uses skill to set up, adjust, operate, and adapt a variety of machine tools such as drill, presses, profilers, external and internal grinders, lathes, milling machines, planers, and shapers to dovetail shanks and to machine cavities to close tolerance. He must have skill in the use of a variety of precision measuring devices such as dividers, scribers, depth and surface gauges, micrometers, shrinkage scales, squares, protractors, and sine bars to plan and measure die cavities involving multiple configurations and related dimensions.

Responsibility: The WG-14 Die Sinker receives assignments in the form of work orders usually accompanied by complex blueprints, drawings, sketches, and rigid specifications. He determines how the work is to be done, the number and sequence of steps needed to do the work, and the number, size, and shape of the cavities which are needed to forge the completed project. If several parts are needed, he determines how many of what kind of dies or parts are needed and distributes less complex work projects to other metalworkers with accompanying instructions and directions. He is responsible for an economical pattern or patterns and the accuracy of contours and dimensions of the total die project whether he completes the project alone or distributes portions to other workers.

3428-14 **3428-14**

He proceeds on work projects from initial assignment to completion. Instructions and suggestions are provided by the shop foreman or forge workers on unusual work or design changes. Completed work is checked to see that the project meets specifications and accepted trade standards.

Physical Effort: Physical effort is used to frequently lift and move blocks of steel by hand of approximately 23 kilograms (50 pounds). Hoists, hand trucks, lifts, and other workers are available for assistance with heavier material. The work requires prolonged standing, bending, stooping, and reaching.

Working Conditions: The WG-14 Die Sinker usually works in the machine shop where there is dust, dirt, and fumes; danger to the skin from flying metal chips and hot metal, and to fingers and hands from close contact with sharp edges, moving cutters, and grinding wheels. He periodically visits the forge where he is subject to heat and glare from open fires, hot metal, loud noises, and vibrations from large drophammers.